

REMARKS

Claims 1-34 are all the claims pending in the application. This Amendment amends claims 1, 13, and 18, and addresses each point of rejection raised by the Examiner. Favorable reconsideration is respectfully requested.

Claims 1-34 are rejected under 35 U.S.C. § 103(a) based on U.S. Patent 5872,554 to Chang *et al.* (herein "Chang") in view of U.S. Patent 6,091,396 to Minami *et al.* (herein "Minami"). Applicant respectfully traverses the grounds of the § 103(a) rejection for the reasons set forth below.

Applicant submits that a series of cells "arranged in a time sequence" does not suggest the claimed invention. For example, Chang does not disclose each pixel comprising adjacent cells, but rather, the series of cells is a series of pages driving a single cell. As explained at column 4, line 10 of Chang, the 3 x 3 arrangement shown in the figures of Chang is an example resolution of an image, with each of the dots in the 3 x 3 arrangement representing a discrete pixel--the 3 x 3 is arbitrary. Even if the claimed "series of cells" were broadly construed to describe the time-indexed pages of Chang (*i.e.*, a temporal series), the present claims refer to a spatial series.

To more explicitly distinguish the claimed picture element from the combination of Chang and Minami, Applicant has amended claims 1, 13 and 18 to recite "wherein the series of cells of a respective picture element which express tones of multiple levels are spatially adjacent."

Applicant asserts that this distinction was already implicit in the claims. For example, claim 13 requires that "at least two of said series of cells having maximum output levels different from each other" and "the output level difference per one level differs from each other between said at least two of said series of cells." In a temporal sequence, the series of cells is actually the same cell being modified, page-by-page. Accordingly, the maximum output level of a cell, for a respective "page," would always be the same. For example, in Chang and Minami, this maximum output level would always be "white," whereas the minimum output level would be

“black.” Thus, these limitations are not characteristic of a temporal series as disclosed in Chang and Minami, but rather, of a spatial series.

Similarly, claim 14 implies a spatial series, not a temporal series. The claim requires that “the maximum output level of one of said at least two cells is substantially the same as the output level difference per one level of the other cell.” Again, this limitation is not compatible with a construction in which the series is a temporal series of a same cell.

Similarly, claim 16 requires that the “liquid crystal panel provided with monochromatic filters which are different in transmittance and respectively formed on said at least two cells for each picture element so that the maximum output levels of said at least two cells become different from each other.” Clearly, such a limitation is not compatible with a construction in which the series is a temporal series of a same cell.

Moreover, even if the series of cells were viewed as a temporal series, the claims are not suggested by Chang and Minami. Specifically, claims 1, 13, 20 and 30 require that each cell of the series of cells express tones in multiple levels. If the Examiner is construing the “series” to be a temporal series, then if each cell (*i.e.*, page) is either black or white (*i.e.*, two tones), such a cell cannot express tones in the required multiple levels, which is defined in the specification as three or more levels.

Further, with regard to claims 18 and 29, Applicant asserts that the Examiner has yet to present a *prima facie* case for why the particular CIE chromaticity requirements (*i.e.*, a particular range of “blue”) is suggested. The Examiner’s rejection simply asserts that a “CIE chromaticity diagram is a standard diagram that is well known in the art...” However, the Examiner has failed to address the particular coordinate requirements expressed in the claims, which Applicant submits are not obvious. As explained in the specification, although x-ray films have been of blue base for a long time--such that doctors and radiographers have been accustomed to making a diagnosis on the blue-base image--blue flat panel devices providing sufficient image discrimination for medical applications have been unavailable. Reconsideration of the chromaticity requirements is respectfully requested.

AMENDMENT UNDER 37 C.F.R. § 1.116
U.S. Application No. 09/289,600

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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APPENDIX

Version With Markings To Show Changes Made

IN THE CLAIMS:

The claims are amended as follows:

1. (Twice Amended) A monochromatic image display system comprising:
a display device comprising a plurality of picture elements, each picture element comprising a series of cells, each cell expressing tones in multiple levels; and
a cell signal generating means which generates, based on a monochromatic image signal indicating an output luminance of a monochromatic image, a cell signal for each cell which determines an output tone level of the cell, so that an average of the output luminances of all the cells within each respective picture element correspond to an output luminance of the respective picture element,
wherein each cell of said series of cells emits light in a same color, ~~and~~
wherein the output luminances of the plurality of picture elements express said monochromatic image, and
wherein the series of cells of a respective picture element expressing tones of the multiple levels are spatially adjacent.

13. (Twice Amended) A monochromatic image display system comprising:
a display device comprising a plurality of picture elements, each picture element comprising a series of cells, each cell expressing tones in multiple levels, and at least two of said series of cells having maximum output levels different from each other; and
a drive means which drives the cells so that the output level difference per one level differs from each other between said at least two of said series of cells,
wherein each cell of said series of cells emits light in a same color, ~~and~~
wherein the plurality of picture elements express a monochromatic image, and
wherein the series of cells of a respective picture element expressing the tones of multiple levels are spatially adjacent.

18. (Twice Amended) A flat panel image display system using a flat panel-like display device, the display device comprising a series of cells, each cell of said series of cells emitting light in a same color, characterized in that the display device is a monochromatic display device which makes a display in a color which falls within the region surrounded by points (0.174, 0), (0.4, 0.4) and (α , 0.4) as represented by co-ordinates (x, y) on a CIE chromaticity diagram, wherein α represents the x-coordinate of the intersection of a spectrum locus and a straight line $y=0.4$, and
wherein the series of cells of a respective picture element are spatially adjacent.